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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,558	02/20/2002	Satoshi Seo	07977-304001	1991

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EXAMINER	
SEFER, AHMED N	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/081,558	SEO ET AL.	
	Examiner	Art Unit	
	A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-62* is/are pending in the application.

4a) Of the above claim(s) *1,3-17,19-25,27-33,35-49 and 51-56* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,18,26,34,50 and 57-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/15/06 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyama et al. ("Fukuyama") USPN 6,831,406 (of record).

Fukuyama discloses (fifth embodiment, fig. 7) a blue organic light emitting device comprising an organic compound film interposed between an anode 10 and a cathode 18, the organic compound film comprising: a hole transporting region 12 comprising a hole transporting material on the anode; a light emitting region 14' comprising a blue light emitting material 14c and a host material 14b/14a added to the blue light emitting material; and an electron transporting region 16 comprising the electron transporting material; wherein the light emitting region does not include the hole transporting material and the electron transporting material, but Fukuyama does not disclose **a first mixed region comprising the hole transporting material**

and the host material and a second mixed region comprising the electron transporting material and the host material.

Fukuyama discloses (fourth embodiment, fig. 6 and col. 8, lines 32-37) an organic light emitting device comprising an organic compound film interposed between an anode 10 and a cathode 18, the organic compound film comprising: a hole transporting region 12 comprising a hole transporting material on the anode **a first mixed region 28 comprising the hole transporting material and a host material -- Note that the host material is an electroluminescent material which could be Coumarin 6 /DMC -- on the hole transporting region; a light emitting region 14 on the first mixed region; a second mixed region 26 comprising the host material and an electron transporting material on the light emitting region;** and an electron transporting region 16 comprising the electron transporting material on the second mixed region; wherein the light emitting region does not include the hole transporting material and the electron transporting material.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Fukuyama's fifth embodiment by incorporating a first mixed region comprising the hole transporting material and a host material and a second mixed region comprising the host material and an electron transporting material so as to contribute to the stabilization of the interface with the emission layer, thus leading to improved emission stability as taught by Fukuyama.

Regarding claim 18, Fukuyama discloses (col. 6, lines 20-55 and col. 8, lines 13-30) a member comprising a fluorescent material that is capable of absorbing blue light emitted from a blue organic emitting device and emitting green or red light.

4. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyama.

Fukuyama discloses fig. 7 a full color display device comprising a blue organic light emitting device comprising an organic compound film interposed between an anode 10 and a cathode 18, the organic compound film comprising: a hole transporting region 12 comprising a hole transporting material on the anode; a light emitting region 14' comprising a blue light emitting material 14c and a host material 14b/14a added to the blue light emitting material; and an electron transporting region 16 comprising the electron transporting material; wherein the light emitting region does not include the hole transporting material and the electron transporting material, but Fukuyama does not disclose **a first mixed region comprising the hole transporting material and the host material and a second mixed region comprising the electron transporting material and the host material**.

Fukuyama discloses (fig. 6 and col. 8, lines 32-37) an organic light emitting device comprising an organic compound film interposed between an anode 10 and a cathode 18, the organic compound film comprising: a hole transporting region 12 comprising a hole transporting material on the anode **a first mixed region 28 comprising the hole transporting material and a host material -- Note that the host material is an electroluminescent material which could be Coumarin 6 /DMC -- on the hole transporting region; a light emitting region 14 on the first mixed region; a second mixed region 26 comprising the host material and an electron transporting material on the light emitting region;** and an electron transporting region 16 comprising the electron transporting material on the second mixed region; wherein the light emitting region does not include the hole transporting material and the electron transporting material.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Fukuyama's fifth embodiment by incorporating a first mixed region comprising the hole transporting material and a host material and a second mixed region comprising the host material and an electron transporting material so as to contribute to the stabilization of the interface with the emission layer, thus leading to improved emission stability as taught by Fukuyama.

5. Claims 26, 50, 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyama in view of Tang et al. ("Tang") USPN 6,384,529.

Fukuyama discloses the device structure including a display device (col. 1, lines 5-11) as recited in the claim, but does not specifically disclose an active matrix display.

Tang discloses (see col. 6, lines 14-37 and col. 7, lines 16-25) a full-color active matrix display comprising a fluorescent member that is capable of absorbing blue light emitted from a blue organic emitting device and emitting green or red light.

Therefore, it would have been obvious to one skilled in the art the time the invention was made to incorporate Tang's teachings with Fukuyama's device since that would provide a high-resolution full-color organic displays as taught by Tang.

As for claims 26 and 50, the prior art omits an electronic equipment selected from the group consisting of a portable/personal computer, video/digital camera and cellular phone. However, Examiner takes Official Notice that an electronic equipment comprising a full color device wherein said electronic equipment selected from the group consisting of a video camera or a digital camera is conventional and well known. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have employed any of the various

electronic equipment since Examiner takes Official Notice that due to their low power consumption, full-color displays have become a necessary and indispensable structural element of an electronic equipment.

6. Claims 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuyama as applied to claims 2 and 34 above, and further in view of Hatwar et al. ("Hatwar") US PG-Pub 2003/0071565.

Fukuyama discloses the device structure as recited in the claim, but does not specifically disclose blue light material being doped to a host material.

Hatwar discloses (fig. 5 and pars. 2, 16 and 18) an organic light emitting device comprising an organic compound film interposed between an anode 520 and a cathode 570, the organic compound film comprising: a hole transporting region 540 comprising a hole transporting material on the anode; and an electron transporting region 560 comprising the electron transporting material; a light emitting region 550 comprising a blue light emitting doped to a host material.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Fukuyama's device by incorporating Hatwar's teachings since that would improve operational lifetime as taught by Hatwar.

Regarding claims 60 and 62, Hatwar discloses (par. 48) the light emitting region being doped within the percentage range recited in claim of the blue light emitting material.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS
April 28, 2006.

A. Sefer
Patent Examiner
Art Unit 2826